



App No.: 09/611,257

Docket No.: 381092000721

Inventor: Terrance P. SNUTCH et al.

Title: MAMMALIAN T-TYPE CALCIUM CHANNELS

REPLACEMENT SHEET

Sheet 1 of 18

1/18

α_{1G}

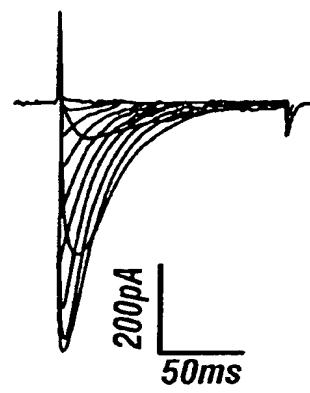


FIG. 1A

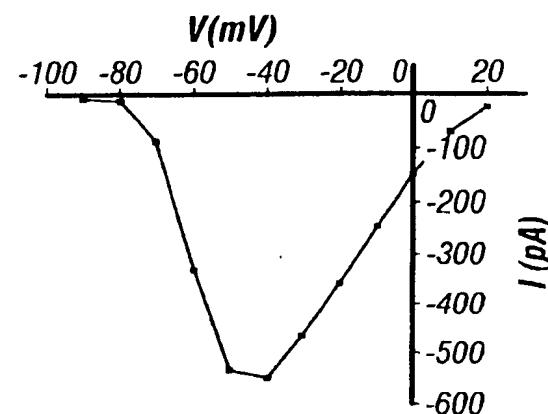


FIG. 1B

α_{1I}

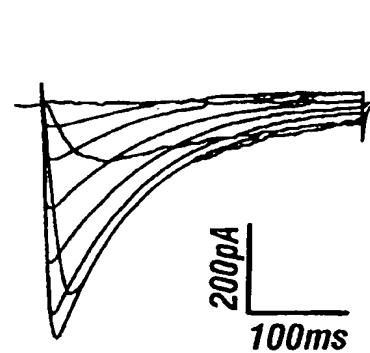


FIG. 2A

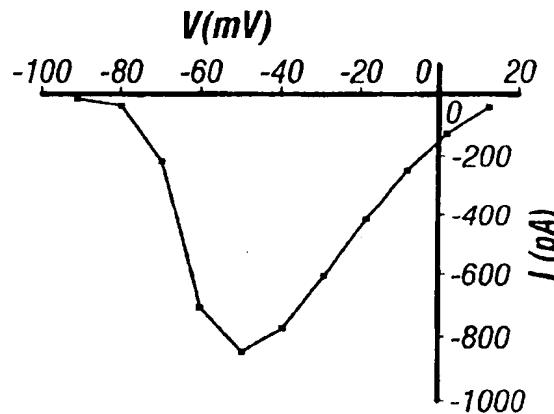
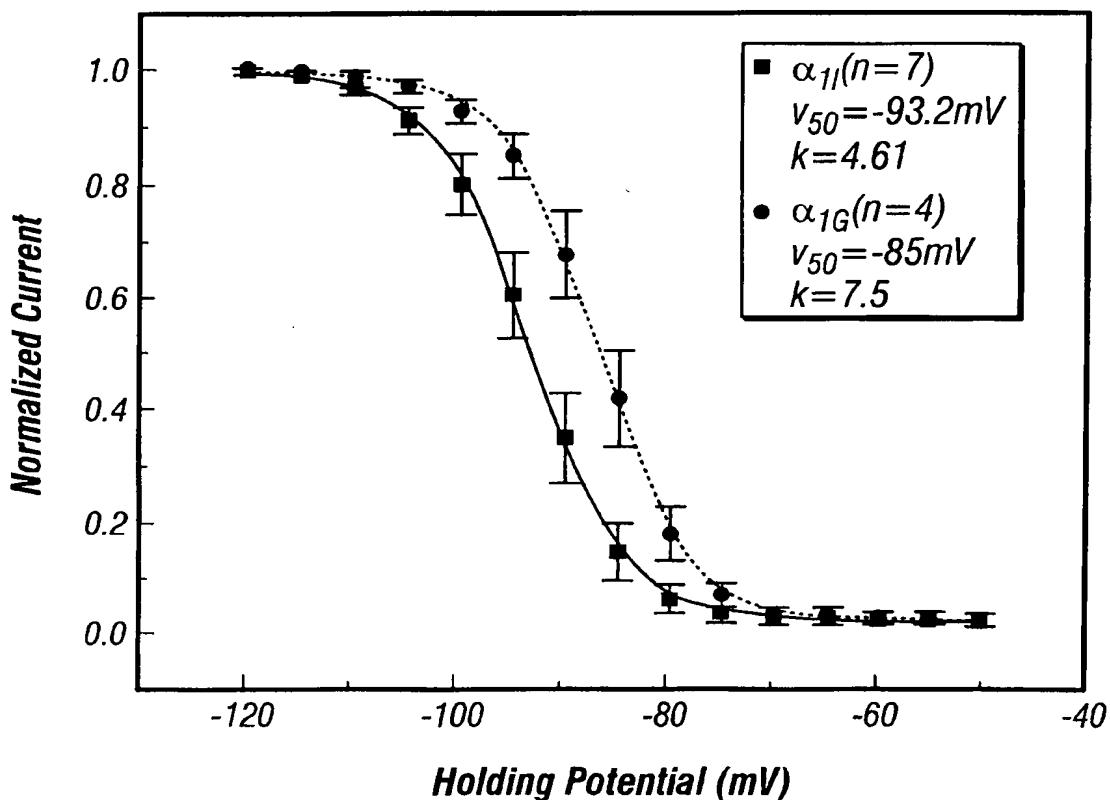


FIG. 2B

2/18

Steady-state Inactivation**FIG. 3**

3/18

Deactivation

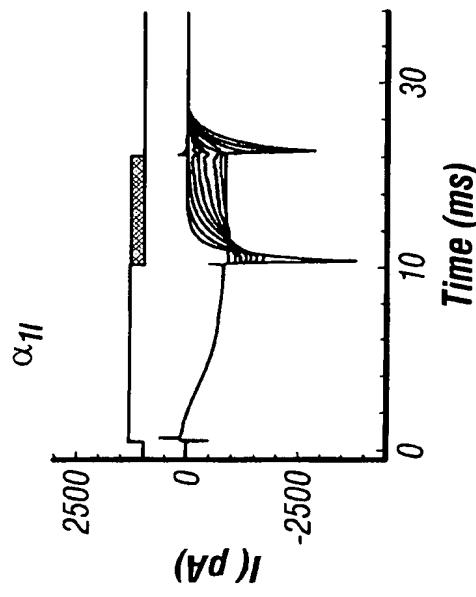


FIG. 4B

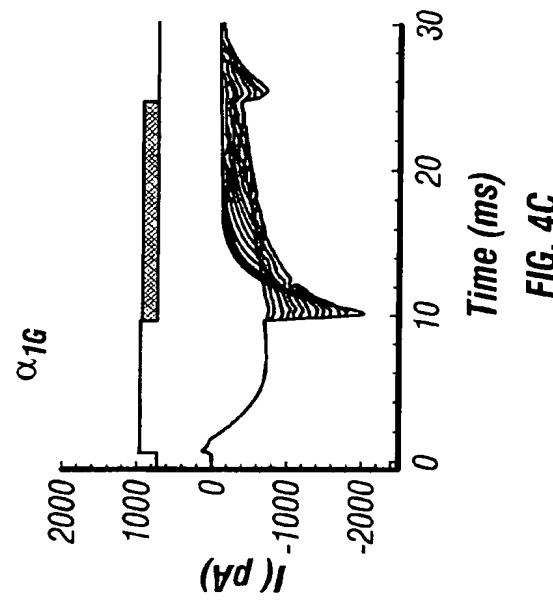


FIG. 4C

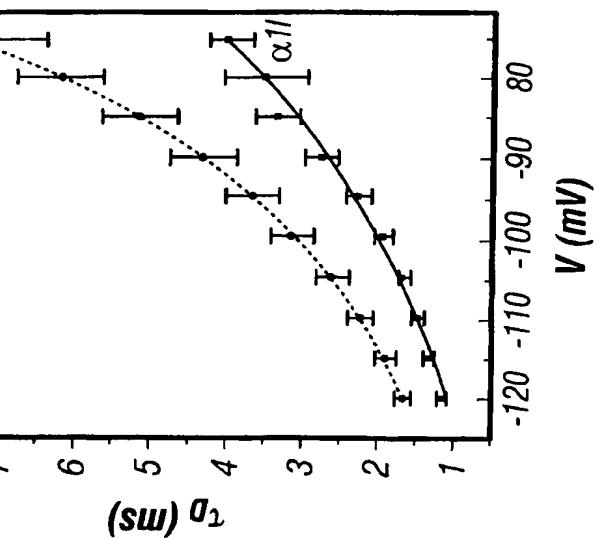
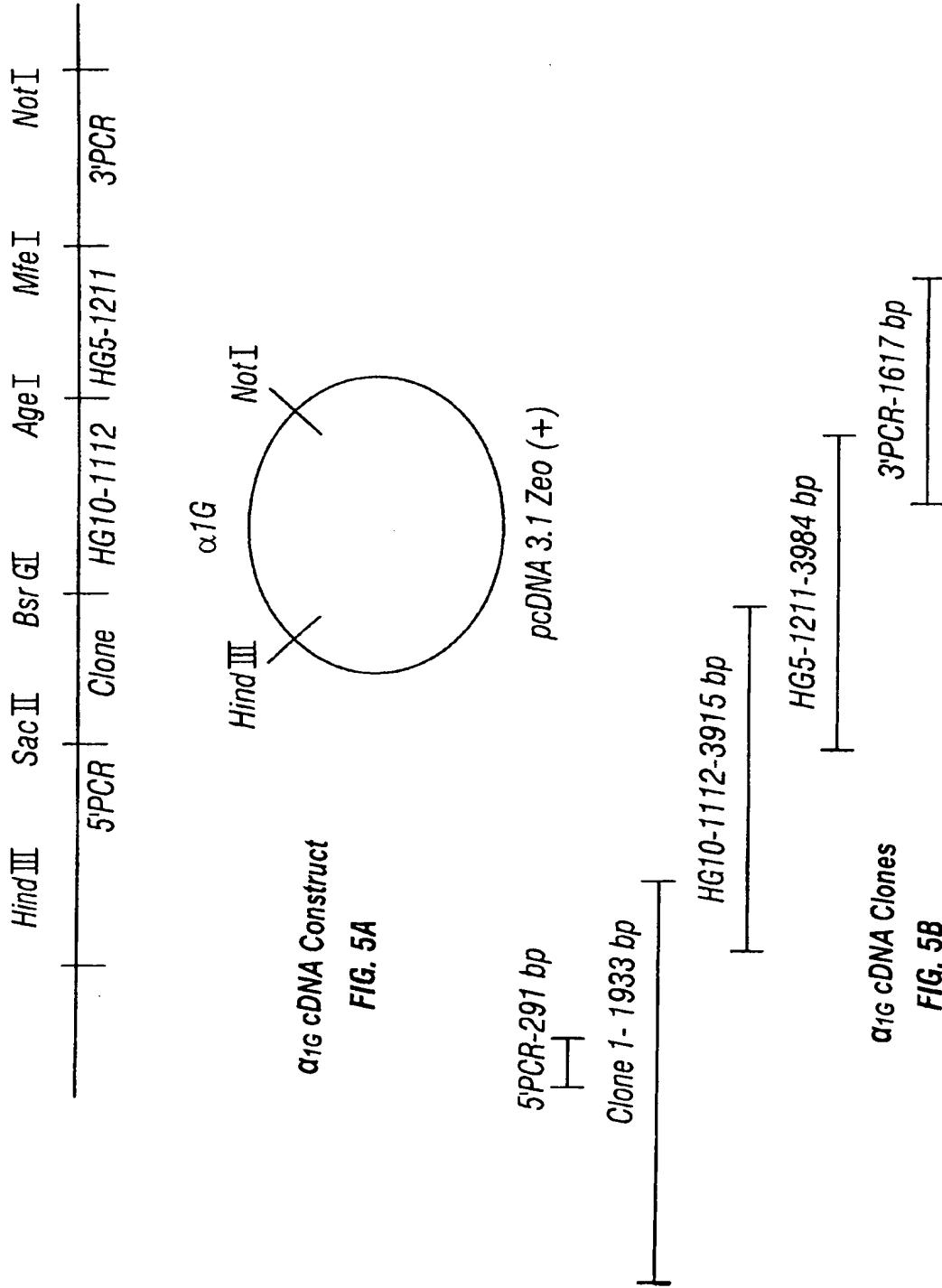


FIG. 4A

4/18



5/18

Human $\alpha 1g$ T-Type Calcium Channel cDNA

(SEQ ID NO:36)

	(SEQ ID NO:37)						
	M	D	E	E	D	G	
1							7
72	GCG	GGC	GAG	GAG	TCG	GGA	71
8	A	G	A	E	S	G	
132	GGC	GGG	GGC	CCG	GGG	CCG	131
28	A	G	G	R	P	G	
192	GCG	GAG	GGG	CTG	CCG	TAC	191
48	A	E	G	L	P	Y	
252	AGC	CGC	CCG	CGG	AGC	TGG	251
68	S	R	P	R	S	W	
312	ATG	TTC	GTC	ATC	CTT	CTC	311
88	M	L	V	I	L	N	
372	GCC	TGT	GAC	TCC	CAG	CGC	371
108	A	C	D	S	Q	R	
432	TTT	GCC	GTG	GAG	ATG	GTG	431
128	F	A	V	E	M	V	
492	CTG	GGA	GAC	ACT	TGG	AAC	491
148	L	G	D	T	W	N	
552	TCG	CTG	GAC	CTG	CAG	AAC	551
168	S	L	D	L	Q	N	
							187

FIG. 6A

6/18

612	CTC	AGG	GCC	ATT	AAC	CGG	GTG	CCC	AGC	ATG	CGC	ATC	CTT	GTC	ACG	TTG	CTG	CTG	GAT	ACG	671
188	L	R	A	I	N	R	V	P	S	M	R	I	L	V	T	L	L	D	T	207	
672	CTG	CCC	ATG	CTG	GGC	AAC	GTC	CTG	CTC	TGC	TTC	TTC	GTC	TTC	ATC	TTC	GGC	ATC	731		
208	L	P	M	L	G	N	V	L	L	L	C	F	F	V	F	I	F	G	I	227	
732	GTC	GGC	GTC	CAG	CTG	TGG	GCA	GGG	CTG	CTT	CGG	AAC	CGA	TGC	TTC	CTA	CCT	GAG	NAT	TTC	791
228	V	G	V	Q	L	W	A	G	L	L	R	N	R	C	F	L	P	E	N	F	247
792	AGC	CTC	CCC	CTG	AGC	GTG	GAC	CTG	GAG	CGC	TAT	TAC	CAG	ACA	GAG	AAC	GAG	GAT	GAG	AGC	851
248	S	L	P	L	S	V	D	L	E	R	Y	Y	Q	T	E	N	E	D	E	S	267
852	CCC	TTC	ATC	TGC	TCC	CAG	CCA	CGC	GAG	AAC	GGC	ATG	CGG	TCC	TGC	AGA	AGC	GTG	CCC	ACG	911
268	P	F	I	C	S	Q	P	R	E	N	G	M	R	S	C	R	S	V	P	T	287
288	L	R	G	D	G	G	G	P	P	C	G	L	D	Y	E	A	Y	N	S	307	
912	CTG	GGC	GAC	GGC	GGG	GGT	GGC	CCA	CCT	TGC	GGT	CTG	GAC	TAT	GAG	GCC	TAC	AAC	AGC	971	
288	L	R	G	D	G	G	G	P	P	C	G	L	D	Y	E	A	Y	N	S	307	
972	TCC	AGC	AAC	ACC	TGT	GTC	AAC	TGG	AA	CAG	TAC	TAC	ACC	AAC	TGC	TCA	GCG	GGG	GAG	1031	
308	S	S	N	T	T	C	V	N	W	N	Q	Y	Y	T	N	C	S	A	G	E	327
1032	CAC	ACC	CCC	TTC	AAG	GGC	GCC	ATC	AAC	TTT	GAC	AAC	ATT	GGC	TAT	GCC	TGG	ATC	GCC	ATC	1091
328	H	N	P	F	K	G	A	I	N	F	D	N	I	G	Y	A	W	I	A	I	347
1092	TTC	CAG	GTC	ATC	ACG	CTG	GAG	GGC	TGG	GTC	GAC	ATC	ATG	TAC	TTT	GTG	ATG	GAT	GCT	CAT	1151
348	F	Q	V	I	T	L	E	G	W	V	D	I	M	Y	F	V	M	D	A	H	367
1152	TCC	TTC	TAC	AAT	TTC	ATC	TAC	TTC	ATC	CTC	CTC	ATC	ATC	GTG	GGC	TCC	TTC	ATG	ATC	1211	
368	S	F	Y	N	F	I	Y	F	I	L	I	I	V	G	S	F	M	I	387		

FIG. 6B

7/18

1212	AAC	CTG	TGC	CTG	GTG	GTG	ATT	GCC	ACG	CAG	TTC	TCA	GAG	ACC	AAG	CAG	CGG	GAA	AGC	CAG	1271	
388	N	L	C	I	V	V	I	A	T	Q	F	S	E	T	K	Q	R	E	S	Q	407	
1272	CTG	ATG	CGG	GAG	CAG	CGT	GTG	CGG	TTC	CTG	TCC	AAC	GCC	AGC	ACC	CTG	GCT	GTC	TTC	TCT	1331	
408	L	M	R	E	Q	R	V	R	F	L	S	N	A	S	T	L	A	S	F	S	427	
1332	GAG	CCC	GGC	AGC	TGC	TAT	GAG	GAG	CTG	CTG	CTG	AAG	TAC	CTG	GTG	TAC	ATC	CTT	CGT	AAG	GCA	1391
428	E	P	G	S	C	Y	E	E	L	L	K	Y	L	V	Y	I	L	R	K	A	447	
1392	GCC	CGC	AGG	CTG	GCT	CAG	GTC	TCT	CGG	GCA	GCA	GGT	GTG	CGG	GTT	GGG	CGT	CTC	AGC	AGC	1451	
448	A	R	R	L	A	Q	V	S	R	A	A	G	V	R	V	G	L	L	S	S	467	
1452	CCA	GCA	CCC	CTC	GGG	GGC	CAG	GAG	ACC	CAG	CCC	AGC	AGC	TGC	TCT	CGC	TCC	CAC	CGC	CGC	1511	
468	P	A	P	L	G	G	Q	E	T	Q	P	S	S	C	S	R	S	H	R	S	487	
1512	CGC	CTA	TCC	GTC	CAC	CAC	CTG	GTG	CAC	TAC	CAC	TAC	CTG	1571								
488	R	L	S	V	H	H	L	V	H	H	H	H	H	H	H	Y	H	Y	H	L	507	
1572	GCC	AAT	GGG	ACG	CTC	AGG	GCC	CCC	CGG	GCC	AGC	CCC	GAG	ATC	CAG	GAC	AGG	GAT	GCC	AAT	1631	
508	G	N	G	T	L	R	A	P	R	A	S	P	E	I	Q	D	R	D	A	N	527	
1632	GGG	TCC	CGC	AGG	CTC	ATG	CTG	CCA	CCA	CCC	TCG	ACG	CTC	GCC	CCT	TCC	GGG	GCC	CCC	CCT	1691	
528	G	S	R	R	L	M	L	P	P	P	S	T	P	A	L	S	G	A	P	P	547	
1692	GGT	GGC	GCA	GAG	TCT	GTG	CAC	AGC	TTC	TAC	CAT	GCC	GAC	TGC	CAC	TTA	GAG	CCA	GTC	CGC	1751	
548	G	G	A	E	S	V	H	S	F	Y	H	A	D	C	H	L	E	P	V	R	567	
1752	TGC	CAG	GCG	CCC	CCT	CCC	AGG	TCC	CCA	TCT	GAG	GCA	TCC	GGC	AGG	ACT	GTG	GGC	AGC	GGG	1811	
568	C	Q	A	P	P	R	S	P	S	E	A	S	G	R	T	V	G	S	G	587		

FIG. 6C

8/18

1812	AAG	GTG	TAT	CCC	ACC	GTG	CAC	ACC	GTG	CAC	ACC	CCT	CCA	CCG	GAG	ACG	CTG	AAG	GAG	GCA	CTA	1871
588	K	V	Y	P	T	V	H	T	S	P	P	P	P	E	T	L	K	E	K	A	L	607
1872	GTA	GAG	GTG	GCT	GCC	AGC	TCT	GGG	CCC	CCA	ACC	CTC	ACC	AGC	CTC	AAC	ATC	CCA	CCC	GGG	1931	
608	V	E	V	A	A	S	S	G	P	P	T	L	T	S	L	N	I	P	P	G	627	
1932	CCC	TAC	AGC	TCC	ATG	CAC	AAG	CTG	CTG	GAG	ACA	CAG	AGT	ACA	GGT	GCC	TGC	CAA	AGC	TCT	1991	
628	P	Y	S	S	M	H	K	L	L	E	T	Q	S	T	G	A	C	Q	S	S	647	
1992	TGC	AAG	ATC	TCC	AGC	CCT	TGC	TTG	AAA	GCA	GAC	AGT	GGA	GCC	TGT	GGT	CCA	GAC	AGC	TGC	2051	
648	C	K	I	S	S	P	C	L	K	A	D	S	G	A	C	G	P	D	S	C	667	
2052	CCC	TAC	TGT	GCC	CGG	GCC	GGG	GCA	GGG	GAG	GTG	GAG	CTC	GCC	GAC	CGT	GAA	ATG	CCT	GAC	2111	
668	P	Y	C	A	R	A	G	A	G	E	V	E	L	A	D	R	E	M	P	D	687	
2112	TCA	GAC	AGC	GAG	GCA	GTT	TAT	GAG	TTC	ACA	CAG	GAT	GCC	CAG	CAC	AGC	GAC	CTC	CGG	GAC	2171	
688	S	D	S	E	A	V	Y	E	F	T	Q	D	A	Q	H	S	D	L	R	D	707	
2172	CCC	CAC	AGC	CGG	CGG	CAA	CGG	AGC	CTG	GGC	CCA	GAT	GCA	GAG	CCC	AGC	TCT	GTG	CTG	GCC	2231	
708	P	H	S	R	R	Q	R	S	L	G	P	D	A	E	P	S	S	V	L	A	727	
2232	TTC	TGG	AGG	CTA	ATC	TGT	GAC	ACC	TTC	CGA	AAG	ATT	GTG	GAC	AGC	AAG	TAC	TTT	GCC	CGG	2291	
728	F	W	R	L	I	C	D	T	F	R	K	I	V	D	S	K	Y	F	G	R	747	
2292	GGA	ATC	ATG	ATC	GCC	ATC	CTG	GTC	AAC	ACA	CTC	AGC	ATG	GGC	ATC	GAA	TAC	CAC	GAG	CAG	2351	
748	G	I	M	I	A	I	L	V	N	T	L	S	M	G	I	E	Y	H	E	Q	767	
2352	CCC	GAG	GAG	CTT	ACC	AAC	GCC	CTA	GAA	ATC	AGC	AAC	ATC	GTC	TTC	ACC	AGC	CTC	TTT	GCC	2411	
768	P	E	E	L	T	N	A	L	E	I	S	N	I	V	F	T	S	L	F	A	787	

FIG. 6D

9/18

2412	CTG	GAG	ATG	CTG	CTG	AAG	CTG	CTT	GTG	TAT	GGT	CCC	TTT	GGC	TAC	ATC	AAG	AAT	CCC	TAC	2471	
788	L	E	M	L	L	K	L	V	Y	G	P	F	G	Y	I	K	N	P	Y	807		
2472	AAC	ATC	TTC	GAT	GGT	GTC	ATT	GTG	GTC	ATC	AGC	GTG	TGG	GAG	ATC	GTG	GGC	CAG	CAG	GGG	2531	
808	N	I	F	D	G	V	I	V	I	S	V	W	E	I	V	G	Q	Q	G	G	827	
2532	GGC	GGC	CTG	TCG	GTG	CTG	CGG	ACC	TTC	CGC	CTG	ATG	CGT	GTG	CTG	AAG	CTG	GTG	CGC	TTC	2591	
828	G	G	L	S	V	L	R	T	F	R	L	M	R	V	L	K	L	V	R	F	847	
2592	CTG	CCG	CTG	CAG	CGG	CAG	CTG	GTG	GTG	CTG	ATG	AAG	ACC	ATG	GAC	AAC	GTG	GCC	ACC	2651		
848	L	P	A	L	Q	R	Q	L	V	V	L	M	K	T	M	D	N	V	A	T	867	
2652	TTC	TGC	ATG	CTG	CTT	ATG	CTC	TTC	ATC	TTC	ATC	TTC	AGC	ATC	CTG	GGC	ATG	CAT	CTC	TTC	2711	
868	F	C	M	L	L	M	L	F	I	F	I	F	I	S	I	L	G	M	H	L	F	887
2712	GGC	TGC	AAG	TTC	GCC	TCT	GAG	CGG	GAT	GGG	GAC	ACC	CTG	CCA	GAC	CGG	AAG	AAT	TTT	GAC	2771	
888	G	C	K	F	A	S	E	R	D	G	D	T	L	P	D	R	K	N	F	D	907	
2772	TCC	TTG	CTC	TGG	GCC	ATC	GTC	ACT	GTC	TTT	CAG	ATC	CTG	ACC	CAG	GAG	GAC	TGG	AAC	AAA	2831	
908	S	L	L	W	A	I	V	T	V	F	Q	I	L	T	Q	E	D	W	N	K	927	
2832	GTC	CTC	TAC	AAT	GGT	ATG	GCC	TCC	ACG	TCG	TCC	TGG	GGG	CTT	TAT	TTC	ATT	GCC	CTC	2891		
928	V	L	Y	N	G	M	A	S	T	S	S	W	A	A	L	Y	F	I	A	L	947	
2892	ATG	ACC	TTC	GGC	AAC	TAC	GTG	CTC	TTC	AAT	TTG	CTG	GTC	GCC	ATT	CTG	GTG	GAG	GGC	TTC	2951	
948	M	T	F	G	N	Y	V	L	F	N	L	L	V	A	I	L	V	E	G	F	967	
2952	CAG	GCG	GAG	GAA	ATC	AGC	AAA	CGG	GAA	GAT	GCG	AGT	GGA	CAG	TTA	AGC	TGT	ATT	CAG	CTG	3011	
968	Q	A	E	E	I	S	K	R	E	D	A	S	G	Q	L	S	C	I	Q	L	987	

FIG. 6E

10/18

3012	CCT	GTC	GAC	TCC	CAG	GGG	GGG	GAT	GGC	AAC	AAG	TCC	GAA	TCA	GAG	CCC	GAT	TTC	TTC	TCA	3071
988	P	V	D	S	Q	G	G	D	A	N	K	S	E	S	E	P	D	F	F	S	1007
3072	CCC	AGC	CTG	GAT	GGT	GAT	GGG	GAC	AGG	AAG	TGC	TTG	GCC	TTG	GTG	TCC	CTG	GGA	GAG	3131	
1008	P	S	L	D	G	D	G	D	R	K	K	C	L	A	L	V	S	L	G	E	1027
3132	CAC	CCG	GAG	CTG	CGG	AAG	AGC	CTG	CTG	CCG	CCT	CTC	ATC	ATC	CAC	ACG	GCC	GCC	ACA	CCC	3191
1028	H	P	E	L	R	K	S	L	P	P	L	I	I	H	T	A	A	T	P	1047	
3192	ATG	TCG	CTG	CCC	AAG	AGC	ACC	AGC	AGC	GGC	CTG	GGC	GAG	GGC	CTG	GGC	CCT	GCG	TCG	CGC	3251
1048	M	S	L	P	K	S	T	S	T	G	L	G	E	A	L	G	P	A	S	R	1067
3252	CGC	ACC	AGC	AGC	GGG	TCG	GCA	GAG	CCT	GGG	GGG	GCC	CAC	GAG	ATG	AAG	TCA	CCG	CCC	3311	
1068	R	T	S	S	S	G	S	A	E	P	G	A	A	H	M	K	S	P	P	1087	
3312	AGC	GCC	CGC	AGC	TCT	CCG	CAC	CCC	TGG	AGC	GCC	GAC	TGG	ACC	AGC	AGG	CGC	AGG	CGC	3371	
1088	S	A	R	S	S	P	H	S	P	W	S	A	S	S	W	T	S	R	R	1107	
3372	TCC	AGC	CGG	AAC	AGC	CTC	GGC	CGT	GCA	CCC	AGC	CTG	AAG	GGG	AGA	AGC	CCA	AGT	GGA	GAG	3431
1108	S	S	R	N	S	L	G	R	A	P	S	L	K	R	R	S	P	S	G	E	1127
3432	CGG	CGG	TCC	CTG	TTG	TCG	TGA	GAA	GGC	CAG	GAG	AGC	CAG	GAT	GAA	GAG	GAG	AGC	TCA	GAA	3491
1128	R	R	S	I	I	S	G	E	G	Q	E	S	Q	D	E	E	E	S	S	E	1147
3492	GAG	GAG	CGG	GCC	AGC	CCT	GGG	GGC	AGT	GAC	CAT	CGC	CAC	AGG	GGG	TCC	CTG	GAG	CGG	GAG	3551
1148	E	E	R	A	S	P	A	G	S	D	H	R	H	R	G	S	L	E	R	E	1167
3552	GCC	AAG	AGT	TCC	TTT	GAC	CTG	CCA	GAC	ACA	CTG	CAG	CTG	CCA	GGG	CTG	CAT	CGC	ACT	GCC	3611
1168	A	K	S	S	F	D	L	P	D	T	L	Q	V	P	G	L	H	R	T	A	1187

FIG. 6F

11/18

3612	AGT	GGC CGA GGG TCT GCT TCT GAG CAC CAG GAC TGC AAT CGC AAG TCG GCT TCA GGG CGC	3671
1188	S	G R G S A S E H Q D C N G K S A S G R	1207
3672	CTG	GCC CGG GCC CTG CGG CCT GAT GAC CCC CCA CTG GAT GGG GAT GAC GCC GAT GAC GAG	3731
1208	L	A R A L R P D P P L D G D A D D E	1227
3732	GGC	AAC CTG AGC AAA GGG GAA CGG GTC CGC GCG TGG ATC CGA GCC CGA CCT GCC TGC	3791
1228	G	N L S K G E R V R A W I R A R L P A C	1247
3792	TAC	CTC GAG CGA GAC TCC TGG TCA CCC TAC ATC TTC CCT CTC CAG TCC AGG TTC CGC CTC	3851
1248	Y	L E R D S W S A Y I F P P Q S R F R L	1267
3852	CTG	TGT CAC CGG ATC ATC ACC CAC AAG ATG TTC GAC CAG GTG GTC CTT GTC ATC ATC TTC	3911
1268	L	C H R I I T H K M F D H V V L V I I F	1287
3912	CTT	AAC TGC ATC ACC ATC GCC ATG GAG CGC CCC AAA ATT GAC CCC CAC AGC GCT GAA CGC	3971
1288	L	N C I T I A M E R P K I D P H S A E R	1307
3972	ATC	TTC CTG ACC CTC TCC AAT TAC ATC TTC ACC GCA GTC TTT CTG GCT GAA ATG ACA GTG	4031
1308	I	F L T L S N Y I F T A V F L A E M T V	1327
4032	AAG	GTG GCA CTG GGC TGG TTC GGG GAG CAG GCG TAC CTG CGG AGC AGT TGG AAC	4091
1328	K	V A L G W C F G E Q A Y L R S S W N	1347
4092	GTG	CTG GAC GGG CTG TTG GTG CTC ATC TCC GTC ATC GAC ATT CTG GTG TCC ATG GTC TCT	4151
1348	V	L D G L L V L I S V I D I L V S M V S	1367
4152	GAC	AGC GGC ACC AAG ATC CTG GGC ATG CTG AGG GTG CTG CGG CTG CTG CGG ACC CTG CGC	4211
1368	D	S G T K I L G M L R V L R T L R	1387

FIG. 6G

12/18

4212	CCG	CTC	AGG	GTG	ATC	AGC	CGG	GGC	CAG	GGG	CTG	AAG	CTG	GTG	GAG	ACG	CTG	ATG	TCC	4271		
1388	P	L	R	V	I	S	R	A	Q	G	L	K	L	V	V	E	T	L	M	S	1407	
4272	TCA	CTG	AAA	CCC	ATC	GGC	AAC	ATT	GTA	GTC	ATC	TGC	TGT	GCC	TTC	TTC	ATC	ATT	TTC	GGC	4331	
1408	S	L	K	P	I	G	N	I	V	V	I	C	C	A	F	F	I	I	F	G	1427	
4332	ATC	TTG	GGG	GTG	CAG	CTC	TTC	AAA	GGG	AAG	TTT	TTC	GTG	TGC	CAG	GGC	GAG	GAT	ACC	AGG	4391	
1428	I	L	G	V	Q	L	F	K	G	K	F	F	V	C	Q	G	E	D	T	R	1447	
4392	AAC	ATC	ACC	AAT	AAA	TCG	TGT	GCC	GAG	GCC	AGT	TAC	CGG	TGG	GTC	CGG	CAC	AAG	TAC	4451		
1448	N	I	T	N	K	S	D	C	A	E	A	S	Y	R	W	V	R	M	K	Y	1467	
4452	AAC	TTT	GAC	AAC	CTT	GGC	CAG	GCC	CTG	ATG	TCC	CTG	TTC	GTT	TTG	GCC	TCC	AAG	GAT	GGT	4511	
1468	N	F	D	N	L	G	Q	A	L	M	S	L	F	V	L	A	S	K	D	G	1487	
4512	TGG	GTG	GAC	ATC	ATG	TAC	GAT	GGG	CTG	GAT	GCT	GTG	GGC	GTG	GAC	CAG	CCC	ATC	ATG	4571		
1488	W	V	D	I	M	Y	D	G	L	D	A	V	G	V	D	Q	Q	P	I	M	1507	
4572	AAC	CAC	AAC	CCC	TGG	ATG	CTG	CTG	TAC	TTG	ATC	TGG	TTC	CTG	CTG	CTC	ATT	GTG	GCC	TTC	TTT	4631
1508	N	H	N	P	N	W	L	L	Y	F	I	S	F	L	L	I	V	A	F	F	1527	
4632	GTC	CTG	AAC	ATG	TTT	GTG	GGT	GTG	GTG	GAG	AAC	TTC	CAC	AAG	TGT	AGG	CAG	CAC	CAG	4691		
1528	V	L	N	M	F	V	G	V	V	E	N	F	H	K	C	R	Q	H	Q	1547		
4692	GAG	GAA	GAG	GCC	CGG	CGG	CGG	GAG	GAG	AAG	CGC	CTA	CGA	AGA	CTG	GAG	AAA	AAG	AGA	4751		
1548	E	E	E	A	R	R	R	E	E	K	R	L	R	R	L	E	K	K	R	1567		
4752	AGG	AAA	GCC	CAG	TGC	AAA	CCT	TAC	TAC	TCC	GAC	TAC	TCC	CGG	TTC	CGG	CTC	CTC	GTC	CAC	4811	
1568	R	K	A	Q	C	K	P	Y	Y	S	D	Y	S	D	R	F	R	L	L	V	1587	

FIG. 6H

13/18

4812	CAC	TTG	TGC	ACC	AGC	CAC	TAC	CTG	GAC	CTC	TTC	ATC	ACA	GGT	GTC	ATC	GGG	CTG	AAC	GTG	4871
1588	H	L	C	T	S	H	Y	L	D	L	F	I	T	G	V	I	G	L	N	V	1607
4872	GTC	ACC	ATG	GCC	ATG	GAG	CAC	TAC	CAG	CAG	CCC	CAG	ATT	CTG	GAT	GAG	GCT	CTG	AAG	ATC	4931
1608	V	T	M	A	M	E	H	Y	Q	Q	P	Q	I	L	D	E	A	L	K	I	1627
4932	TGC	AAC	TAC	ATC	TTC	ACT	GTC	ATC	TTT	GTC	TTG	GAG	TCA	GTT	TTC	AAA	CTT	GTG	GCC	TTT	4991
1628	C	N	Y	I	F	T	V	I	F	V	L	E	S	V	F	K	L	V	A	F	1647
4992	GGT	TTC	CGT	CGG	TTC	TTC	CAG	GAC	AGG	TGG	AAC	CAG	CTG	GAC	CTG	GCC	ATT	GTG	CTG	CTG	5051
1648	G	F	R	R	F	F	Q	D	R	W	N	Q	L	D	L	A	I	V	L	L	1667
5052	TCC	ATC	ATG	GGC	ATC	ACG	CTG	GAG	GAA	ATC	GAG	GTC	AAC	GCC	TCG	CTG	CCC	ATC	AAC	CCC	5111
1668	S	I	M	G	I	T	L	E	E	I	E	V	N	A	S	L	P	I	N	P	1687
5112	ACC	ATC	ATC	CGC	ATC	ATG	AGG	GTG	CTG	CGC	ATT	GCC	CGA	GTG	CTG	AAG	CTG	CTG	AAG	ATG	5171
1688	T	I	R	I	M	R	V	L	R	I	A	R	V	L	K	L	L	K	M	1707	
5172	GCT	GTG	GGC	ATG	CGG	CGG	CTG	CTG	GAC	ACG	GTG	ATG	CAG	GCC	CTG	CCC	CAG	GTG	GGG	AAC	5231
1708	A	V	G	M	R	A	L	L	D	T	V	M	Q	A	L	P	Q	V	G	N	1727
5232	CTG	GGA	CTT	CTC	TTC	ATG	TTG	TTG	TTT	TTC	ATC	TTT	GCA	GCT	CTG	GGC	GTG	GAG	CTC	TTT	5291
1728	L	G	L	F	M	L	F	F	I	F	A	A	L	G	V	E	L	F	1747		
5292	GGA	GAC	CTG	GAG	TGT	GAC	GAG	ACA	CAC	CCC	TGT	GAG	GGC	CTG	GGC	CGT	CAT	GCC	ACC	TTT	5351
1748	G	D	L	E	C	D	E	T	H	P	C	E	G	L	G	R	H	A	T	F	1767
5352	CGG	AAC	TTT	GGC	ATG	GCC	TTC	CTA	ACC	CTC	TTC	CGA	GTC	TCC	ACA	GGT	GAC	AAT	TGG	AAT	5411
1768	R	N	F	G	M	A	F	L	T	F	R	V	S	T	G	D	N	W	N	1787	

FIG. 6I

14/18

5412	GGC	ATT	ATG	AAG	GAC	ACC	CTC	CGG	GAC	TGT	GAC	CAG	TCC	ACC	TGC	TAC	AAC	ACG	GTC	5471	
1788	G	I	M	K	D	T	I	R	D	C	D	Q	E	S	T	C	Y	F	T	V	1807
5472	ATC	TCG	CCT	ATC	TAC	TTT	GTG	TCC	TTC	GTG	CTG	ACG	GGC	CAG	TTC	GTG	CTA	GTC	AAC	GTG	5531
1808	I	S	P	I	Y	F	V	S	F	V	L	T	A	Q	F	V	L	V	N	V	1827
5532	GTG	ATC	GCC	GTG	CTG	ATG	AAG	CAC	CTG	GAG	AGC	AAC	AAG	GAG	GCC	AAG	GAG	GAG	GCC	5591	
1828	V	I	A	V	L	M	K	H	L	E	E	S	N	K	E	A	K	E	E	A	1847
5592	GAG	CTA	GAG	GCT	GAG	CTG	GAG	CTG	GAG	ATG	AAG	ACC	CTC	AGC	CCC	CAG	CCC	CAC	TCG	CCA	5651
1848	E	L	E	A	E	L	E	M	K	T	L	S	P	Q	P	H	S	P	P	1867	
5652	CTG	GGC	AGC	CCC	TTC	CTC	TGG	CCT	GGG	GTC	GAG	GGC	CCC	GAC	AGC	CCC	GAC	AGC	CCC	AAG	5711
1868	L	G	S	P	F	L	W	P	G	V	E	G	P	D	S	P	D	S	P	K	1887
5712	CCT	GGG	GCT	CTG	CAC	CCA	GCG	GCC	CAC	GCG	AGA	TCA	GGC	TCC	CAC	TTT	TCC	CTG	GAG	CAC	5771
1888	P	G	A	L	H	P	A	H	A	R	S	A	S	H	F	S	L	E	H	1907	
5772	CCC	ACG	ATG	CAG	CCC	CAC	CCC	ACG	GAG	CTG	CCA	CCA	GAC	TTA	CTG	ACT	GTG	CGG	AAG	5831	
1908	P	T	M	Q	P	H	P	T	E	L	P	G	P	D	L	L	T	V	R	K	1927
5832	TCT	GGG	GTC	AGC	CGA	ACG	CAC	TCT	CTG	CCC	AAT	GAC	AGC	TAC	ATG	TGT	CGG	CAT	GGG	AGC	5891
1928	S	G	V	S	R	T	H	S	L	P	N	D	S	Y	M	C	R	H	G	S	1947
5892	ACT	GCC	GAG	GGG	CCC	CTG	GGA	CAC	AGG	GGC	TGG	GGG	CTC	CCC	AAA	GCT	CAG	TCA	GGC	TCC	5951
1948	T	A	E	G	P	L	G	H	R	G	W	G	L	P	K	A	Q	S	G	S	1967
5952	GTC	TTG	TCC	GTG	TAC	TCC	CAG	CCA	GCA	GAT	ACC	AGC	TAC	ATC	CTG	CAG	CTT	CCC	AAA	GAT	6011
1968	V	L	S	V	H	S	Q	P	A	D	T	S	Y	I	L	Q	L	P	K	D	1987

FIG. 6J

15/18

6012	GCA	CCT	CAT	CTG	CTC	CAG	CCC	CAC	AGC	GCC	CCA	ACC	TGG	GGC	ACC	ATC	CCC	AAA	CTG	CCC	6071
1988	A	P	H	L	Q	P	H	S	A	P	T	W	G	T	I	P	K	L	P		2007
6072	CCA	CCA	GGA	CGG	TCC	CCT	TTG	GCT	CAG	AGG	CCA	CTC	AGG	GGC	CAG	GCA	GCA	ATA	AGG	ACT	6131
2008	P	P	G	R	S	P	L	A	Q	R	P	L	R	R	Q	A	A	I	R	T	2027
6132	GAC	TCC	TTG	GAC	GTT	CAG	GGT	CTG	GGC	AGC	CGG	GAA	GAC	CTG	CTG	GCA	GAG	GTG	AGT	GGG	6191
2028	D	S	L	D	V	Q	G	L	G	S	R	E	D	L	L	A	E	V	S	G	2047
6192	CCC	TCC	CCG	CCC	CTG	GGC	CGG	TAC	TCT	TTC	TGG	GGC	CAG	TCA	AGT	ACC	CAG	GCA	CAG		6251
2048	P	S	P	P	L	A	R	A	Y	S	F	W	G	Q	S	S	T	Q	A	Q	2067
6252	CAG	CAC	TCC	CGG	AGC	CAC	AGC	AAG	ATC	TCC	AAG	CAC	ATG	ACC	CCG	CCA	GCC	CCT	TGC	CCA	6311
2068	Q	H	S	R	S	H	S	K	I	S	K	H	M	T	P	P	A	P	C	P	2087
6312	GGC	CCA	GAA	CCC	AAC	TGG	GGC	AAG	GCC	CCT	CCA	GAG	ACC	AGA	AGC	AGC	TTA	GAG	TTG	GAC	6371
2088	G	P	E	P	N	W	G	K	G	P	P	E	T	R	S	S	L	E	L	D	2107
6372	ACG	GAG	CTG	AGC	TGG	ATT	TCA	GGA	GAC	CTC	CTG	CCC	CCT	GGC	GGC	CAG	GAG	CCC	CCA		6431
2108	T	E	L	S	W	I	S	G	D	L	P	P	G	G	Q	E	E	P	P		2127
6432	TCC	CCA	CGG	GAC	CTG	AAG	AAG	TGC	TAC	AGC	GTG	GAG	GGC	CAG	AGC	TGC	CAG	CGG	CGT	6491	
2128	S	P	R	D	L	K	K	C	Y	S	V	E	A	Q	S	C	Q	R	R	P	2147
6492	ACG	TCC	TGG	CTG	GAT	GAG	CAG	AGG	AGA	CAC	TCT	ATC	GCC	GTC	AGC	TGC	CTG	GAC	AGC	GGC	6551
2148	T	S	W	L	D	E	Q	R	R	H	S	I	A	V	S	C	L	D	S	G	2167
6552	TCC	CAA	CCC	CAC	CTG	GGC	ACA	GAC	CCC	TCT	AAC	CTT	GGG	GGC	CAG	CCT	CTT	GGG	GGG	CCT	6611
2168	S	Q	P	H	L	G	T	D	P	S	N	L	G	G	Q	P	L	G	G	P	2187

FIG. 6K

16/18

6612	GGG	AGC	CGG	CCC	AAG	AAA	CTC	AGC	CCG	CCT	AGT	ATC	ACC	ATA	GAC	CCC	CCC	GAG	AGC	6671	
2188	G	S	R	P	K	K	K	L	S	P	P	S	I	T	I	D	P	P	E	S	2207
6672	CAA	GGT	CCT	CGG	ACC	CCG	CCC	AGC	CCG	CCT	GGT	ATC	TGC	CTC	CGG	AGG	GCT	CCG	TCC	AGC	6731
2208	Q	G	P	R	T	P	P	S	P	G	I	C	L	R	R	A	P	S	S	2227	
6732	GAC	TCC	AAG	GAT	CCC	TTG	GCC	TCT	GGC	CCC	CCT	GAC	AGC	ATG	GCT	GCC	TCC	CCC	TCC	CCA	6791
2228	D	S	K	D	P	L	A	S	G	P	P	D	S	M	A	A	S	P	S	P	2247
6792	AAG	AAA	GAT	GTG	CTG	AGT	CTC	TCC	GGT	TTA	TCC	TCT	GAC	CCA	GCA	GAC	CTG	GAC	CCC	TGA	6851
2248	K	K	D	V	L	S	L	S	G	L	S	S	D	P	A	D	L	D	P	-	2267
6852	gtcctgccccacttcccaacttccacttccactgggtgc																				6892

FIG. 6L

17/18

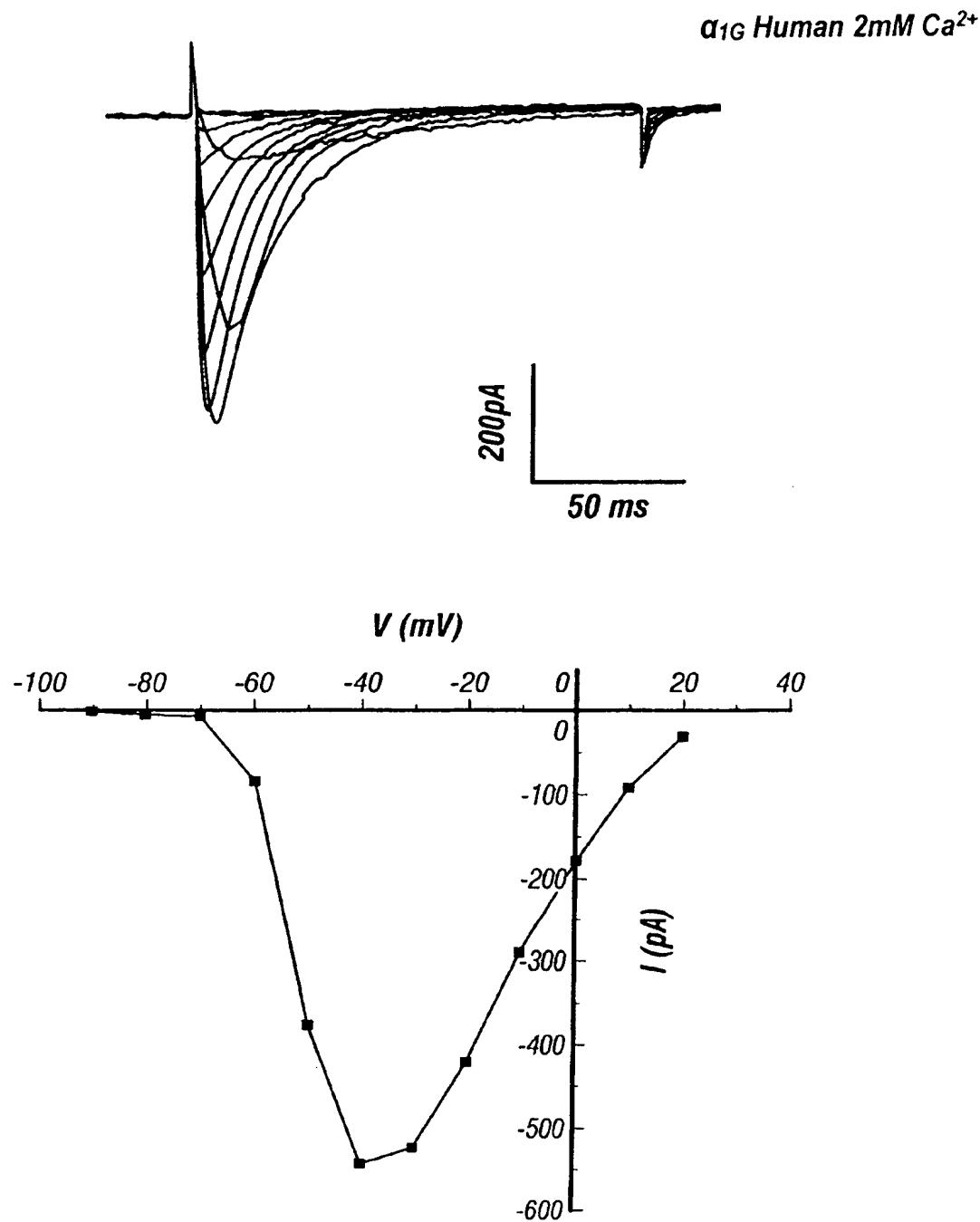


FIG. 7

18/18

COMPARISON OF P-REGIONS

										(SEQ ID NOS:38-43)	
I		II		III		IV					
LAASE	E	GWVYV		QIITQ	E	GWTDV		ETLSF	K	GWNVI	RCLTG
LAASQ	E	GWVYV		QIITQ	E	GWTDV		ETLSY	K	GWNVV	RSVTG
EASSQ	E	GWVFL		QILTQ	E	GWVDV		EVLSL	K	GWVEV	RIVTG
QCITM	E	GWTDV		QILTG	E	DWNSV		TVSTF	E	GWPEL	RCATG
QVITL	E	GWVDI		QILTQ	E	DWNKV		VLASK	D	GWVDI	RVSTG
RLMTQ	D	FWENL		RVLCG	E	WIETM		QVATF	K	GWMDI	QITTS

FIG. 8